

## SECTION 170

### ELECTRONIC MARKER DISKS

170.1 GENERAL: Electronic location markers shall consist of disks having a passive device capable of reflecting a specifically designated impulse frequency, unique to the utility being installed. Disks shall be color-coded in accordance with the American Public Works Association's Utility Location and Coordinating Council Standards. Electronic Marker Disks (EMD's) shall be as manufactured by Automation Products Company, or approved equal.

#### 170.2 REFERENCES

170.3 INSTALLATION: Marker disks shall be installed flat and horizontal approx. 6 inches over the point to be located, and a minimum of 6 inches from any metal object. However, depth of burial shall not be less than 2-1/2 feet nor more than 6 feet. Disks shall be hand backfilled to 1 foot above the disk to prevent movement or damage.

170.4 PLACEMENT: Electronic Marker Disks shall be installed at the following locations:

##### 170.4.1 SANITARY SEWER:

170.4.1.1 At manholes on unpaved streets and easements, one foot upstream of the manhole over the centerline of the main line.

170.4.1.2 At temporary dead ends of lines.

170.4.1.3 At the property line for all service lines, and service stubs from vacuum pits.

170.4.1.4 At the centerline of the gravity main line over all risers.

170.4.1.5 At all plugged tees.

170.4.1.6 At upper bend on vacuum sewer lifts.

170.4.1.7 At wye for branch line connect to vacuum sewer main.

##### 170.4.1.8 On Sanitary Sewer Force Mains:

170.4.1.8.1 At valves, one foot north or west of the valve over the main line.

170.4.1.8.2 At bends, 22-1/2 degrees and larger.

170.4.1.8.3 At capped or plugged ends.

170.4.1.8.4 At tees over the main line.

170.4.1.8.5 For single services, over the main line at the service tap.

##### 170.4.2 WATER LINES:

170.4.2.1 At valves, one foot north or west of the valve over the main line.

170.4.2.2 At flanged outlets on concrete cylinder pipes.

170.4.2.3 On all water line installations.

170.4.2.3.1 At bends, 22-1/2 degrees and larger.

170.4.2.3.2 At capped or plugged ends.

170.4.2.3.3 At tees over the main line.

170.4.2.3.4 For single services, over the main line at the service tap, if service is not 90° to the main.

170.4.2.3.5 For double services, over the main line half-way between the service taps, if service is not 90° to the main.

170.4.3 The CONTRACTOR shall certify in writing that the Electronic Marker Disk is in place, prior to paving over any of the above locations. Electronic Marker Disks that are found to be missing shall be installed at the CONTRACTOR'S expense. Existing disks that are encountered during construction, but are no longer required according to the above criteria, shall be returned to the City Yards.

170.5 MEASUREMENT AND PAYMENT: No separate measurement or payment will be made for Electronic Marker Disks.